

FIRE WATER LINE DATA			DOMESTIC WATER LINE DATA			SEWER LINE DATA		
LINE #	LENGTH	DIRECTION	LINE #	LENGTH	DIRECTION	LINE #	LENGTH	DIRECTION
F1	2.08	N89° 53' 06.07"E	D1	62.34	N89° 52' 40.04"E	S1	37.64	N89° 59' 48.93"E
F2	11.45	N0° 00' 01.79"E	D2	26.16	S45° 07' 19.96"E	S2	49.92	N89° 59' 48.93"E
F3	4.08	N90° 00' 00.00"E	D3	10.95	S0° 02' 11.13"E	S3	17.45	N0° 00' 11.07"W
F4	132.70	N0° 00' 00.00"E				S4	36.47	N89° 59' 48.93"E
F5	165.60	N90° 00' 00.00"E				S5	14.55	N0° 00' 00.00"E
F6	10.30	N0° 00' 00.00"E						
F7	12.54	N89° 54' 05.02"E						
F8	45.54	N89° 51' 55.25"E						
F9	22.01	S45° 07' 19.96"E						
F10	8.87	S0° 02' 11.13"E						

NOTE TO CONTRACTOR:

- CONTACT SBMWD DISTRIBUTION SECTION AT (909) 453-6121 OR (909) 384-5095 TO SCHEDULE OFF-SITE WATER SERVICE INSTALLATION AND COORDINATION WITH ON-SITE WATER UTILITIES.
- CONTACT SBMWD ENGINEERING SECTION WITH 48-HOUR NOTIFICATION PRIOR INSTALLATION OF THE PROPOSED NEW SEWER LATERAL FOR INSPECTION AT (909) 453-6175.

UTILITY NOTES

WATER CONSTRUCTION NOTES:

- INSTALL 2-INCH WATER SERVICE CONNECTION AND METER PER SBMWD STD. DWG. NO. W1.8
- INSTALL 1-INCH WATER IRRIGATION SERVICE CONNECTION AND METER PER SBMWD STD. DWG. NO. W1.11
- INSTALL 2-INCH BACKFLOW PREVENTER PER SBMWD STD. DWG. NO. W4.1
- INSTALL 1-INCH BACKFLOW PREVENTER PER SBMWD STD. DWG. NO. W4.1
- INSTALL 2-INCH WATER SERVICE TYPE L HARD COPPER TUBING OR APPROVED EQUAL
- INSTALL 1-INCH WATER SERVICE TYPE K SOFT COPPER TUBING OR APPROVED EQUAL
- INSTALL 2-INCH 45° ELBOW
- INSTALL 2-INCH PVC, SCH 40 OR APPROVED EQUAL

SEWER CONSTRUCTION NOTES:

- INSTALL 6-INCH PVC SDR 35 SEWER LATERAL PER SBMWD STD. DWG. NO. S.305
- INSTALL 6-INCH SEWER SADDLE PER SBMWD STD. DWG. NO. S.307
- INSTALL 6-INCH CLEAN OUT PER SBMWD STD. DWG. NO. S.310
- INSTALL GREASE INTERCEPTOR PER PLUMBING PLANS

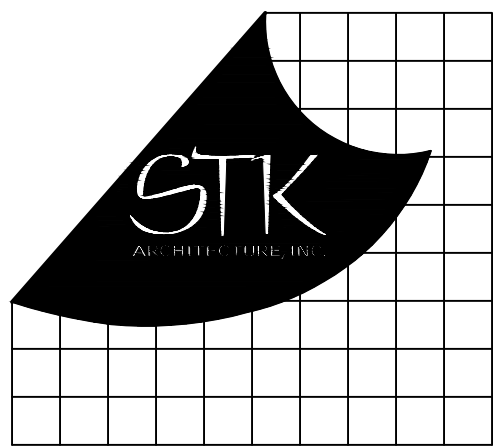
FIRE PROTECTION CONSTRUCTION NOTES:

- INSTALL 8-INCH FIRE DOUBLE DETECTOR CHECK PER SBMWD STD. DWG. NO. W4.3
- INSTALL POST INDICATOR AND FIRE DEPARTMENT CONNECTION VALVE PER DETAIL ON SHEET C-2
- INSTALL 8-INCH PVC C900 OR APPROVED EQUAL
- INSTALL 6-INCH PVC C900 OR APPROVED EQUAL
- INSTALL 6-INCH DIA. FIRE HYDRANT PER SBMWD STD. DWG. NO. W2.2
- INSTALL 6-INCH 45° ELBOW
- INSTALL 8-INCH 90° ELBOW
- INSTALL 8X8-INCH TEE
- INSTALL 8X6" REDUCER WITH RESTRAINED JOINTS
- CONNECT FIRE LINE PER DETAIL ON SHEET C-2
- INSTALL 8-INCH TAPPING SLEEVE PER SBMWD STD. DWG. NO. W3.5
- CONSTRUCT 3'X3' CONCRETE PAD PER SBMWD STD. DWG. NO. W2.2
- INSTALL 6-INCH CLASS 350 DUCTILE IRON PIPE RESTRAINED WITH MEGALUG OR APPROVED EQUAL
- INSTALL 8-INCH CLASS 350 DUCTILE IRON PIPE RESTRAINED OR APPROVED EQUAL
- INSTALL 6-INCH TAPPING SLEEVE PER SBMWD STD. DWG. NO. W3.5

LEGEND

- TAPPING SLEEVE
- DOUBLE CHECK DETECTOR ASSEMBLY
- POST INDICATOR VALVE
- GATE VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTER
- PROPOSED FIRELINE
- POINT OF CONNECTION
- CLEAN OUT
- F.D.C.
- WM WATER METER
- BLUE RETRO-REFLECTIVE
- THRUST BLOCK
- PROPOSED WATERLINE
- PROPOSED STORM DRAIN

- NOTES:**
- TRENCH DETAIL PER SBMWD STD. DWG. NO. W5.1 AND W5.1A
 - ALL THRUST BLOCKS AND RESTRAINED JOINTS PER SBMWD STD. DWG. NO. W6.4 AND W6.4A
 - INSTALL THRUST BLOCKS AT ALL ANGLE POINTS, TEES, END OF LINES, AND FIRE HYDRANTS



4095 ZEVO DR., TEMECULA, CALIFORNIA 92590-3760
Phone: 951.296.8110 Fax: 951.296.6079 Email: sk@stkinc.com

CONSULTANT:



1861 W. Redlands Blvd, Bldg 7B
Redlands, Ca. 92373
P: (909) 890-1255
F: (909) 890-0995

PROJECT ADMINISTERED BY:
SAN BERNARDINO COUNTY
PROJECT & FACILITIES
MANAGEMENT DEPARTMENT

385 N. ARROWHEAD AVE.
SAN BERNARDINO, CA 92415

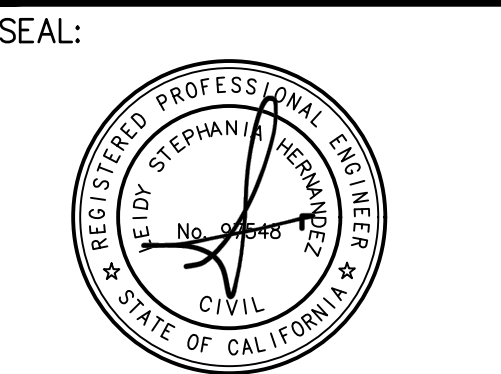
PROJECT NAME:
SAN BERNARDINO
COUNTY FIRE
DEPARTMENT:
FIRE STATION 227

PROJECT # 10.10.1202
CIP #22-105
APN: 0154-281-01

180 W. 38TH STREET
SAN BERNARDINO,
CA 92405

ISSUE INFORMATION:
DATE: 03-14-25 INFORMATION: Plan Check 1
05-13-25 Plan Check 2

SHEET INFORMATION:
STK PROJECT NO.: 374-193-24
SCALE: AS NOTED
DATE: DECEMBER 2024
PLOT DATE:
DRAWING NAME:



SHEET TITLE:

ON-SITE
UTILITIES

SHEET NO.:

C-5

SHT 5 OF 6

EROSION CONTROL CONSTRUCTION NOTES

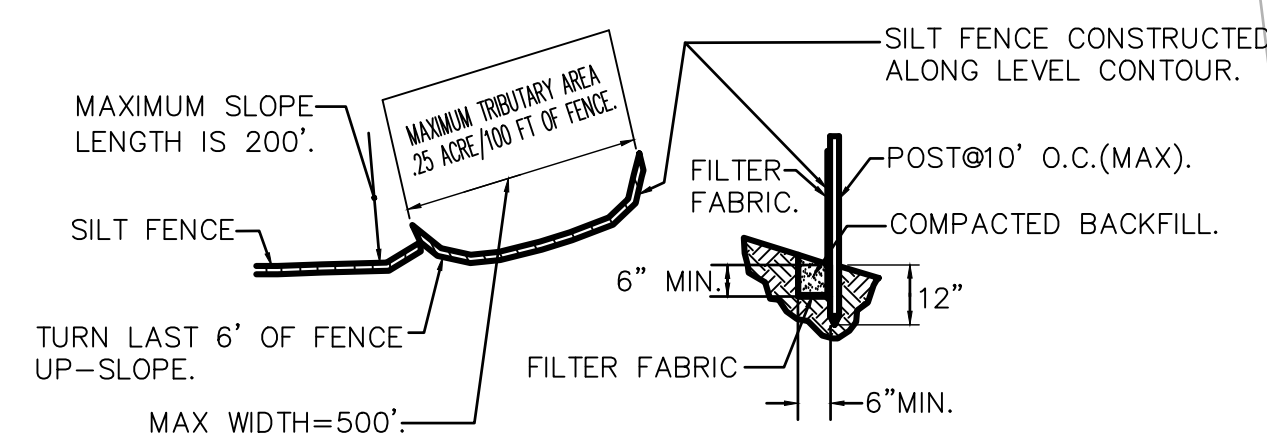
- 1 SILT FENCE (SE-1).
- 2 STABILIZED CONSTRUCTION ENTRANCE/EXIT (TC-1) WITH RUMBLE RACKS (10'x24" MIN.).
- 3 GRAVEL BAG BARRIER (SE-6).
- 4 MATERIAL DELIVERY AND STORAGE (WM-01).
- 5 VEHICLE STORAGE.
- 6 WASTE STORAGE AREA.
- 7 VEHICLE WASHING AND MAINTENANCE AREA.
- 8 STORM DRAIN INLET PROTECTION (SE-10).
- 9 WIND EROSION CONTROLS PER CASQA NS-3.
- 10 STREET SWEEPING (SE-7).
- 11 FIBER ROLLS (SE-5).

LEGEND

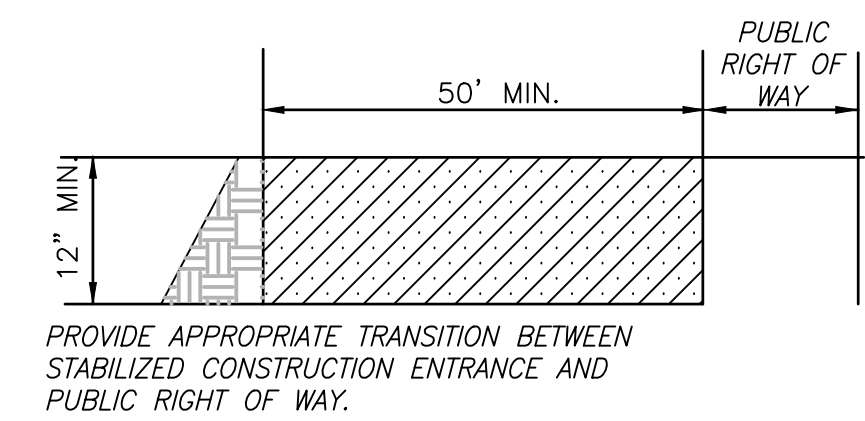
- SAND BAGS
- SILT FENCE
- FLOW PATH
- GRADING LIMITS
- FIBER ROLLS
- OVER-EXCAVATION LIMITS
- STABILIZED CONSTRUCTION ENTRANCE
- MATERIAL DELIVERY/STORAGE AREA
- VEHICLE STORAGE AND MAINTENANCE AREA
- VEHICLE WASHING AREA
- WASTE STORAGE AREA

NOTE TO CONTRACTOR

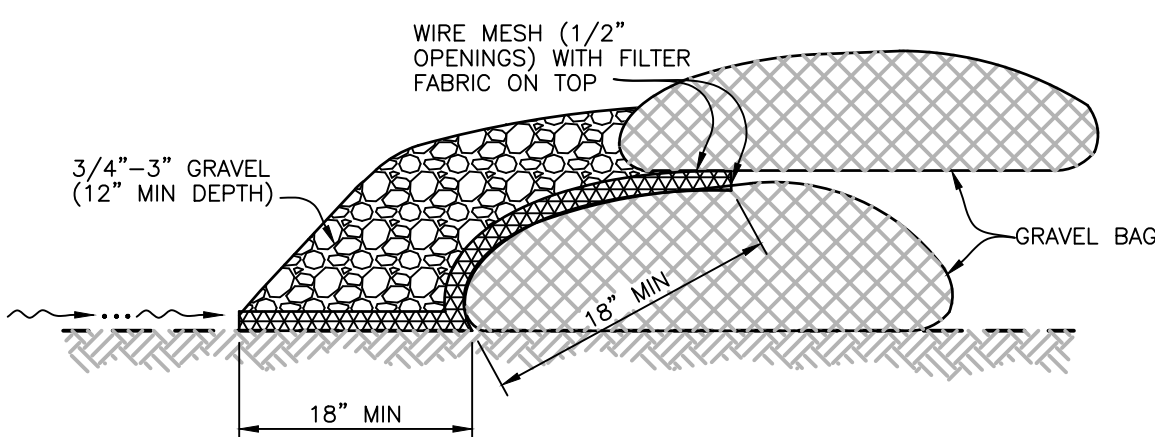
ALL OFF-SITE VEGETATION IS TO BE PROTECTED IN PLACE



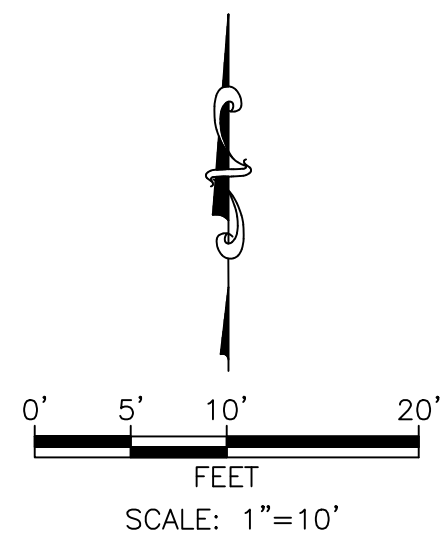
1 SILT FENCE
N.T.S.



2 STABILIZED CONSTRUCTION ENTRANCE
N.T.S.



3 GRAVEL BAG DETAIL
N.T.S.



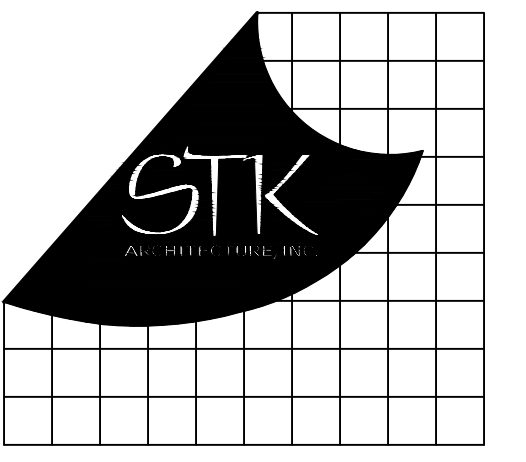
N MOUNTAIN VIEW AVENUE

GENEVIEVE STREET

38TH STREET

PROPOSED FIRE STATION
FF = 1287.00
PAD = 1286.50

FIRE APPARATUS BAY
FF = 1287.00
PAD = 1286.25



CONSULTANT:



PROJECT ADMINISTERED BY:
SAN BERNARDINO COUNTY
PROJECT & FACILITIES
MANAGEMENT DEPARTMENT

1861 W. ARROWHEAD AVE.
SAN BERNARDINO, CA 92415

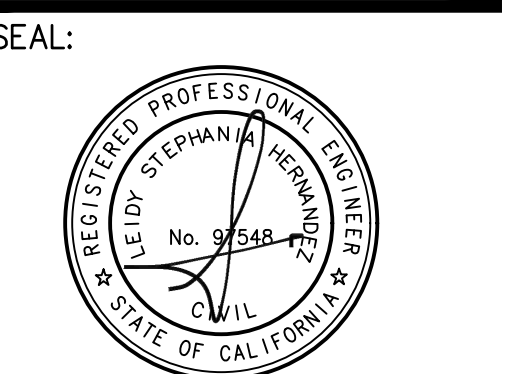
PROJECT NAME:
SAN BERNARDINO
COUNTY FIRE
DEPARTMENT:
FIRE STATION 227

PROJECT # 10.10.1202
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180 W. 38TH STREET
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ISSUE INFORMATION:	
DATE:	INFORMATION:
03-14-25	Plan Check 1
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SHEET INFORMATION:
STK PROJECT NO.: 374-193-24
SCALE: AS NOTED
DATE: DECEMBER 2024
PLOT DATE:
DRAWING NAME:



SHEET TITLE:
EROSION
CONTROL

SHEET NO.:
C-6
SHT 6 OF 6

Attachment C
Supporting Calculations and Manufacturer Details

NOT FOR BID

Project: SAN BERNARDINO CO.FIRE DEPARTMENT-FIRE STATION227



Chamber Model -	MC-3500
Units -	Imperial
Number of Chambers -	24
Number of End Caps -	6
Voids in the stone (porosity) -	40 %
Base of Stone Elevation -	1278.64 ft
Amount of Stone Above Chambers -	12 in
Amount of Stone Below Chambers -	9 in

Area of system - 1491 sf Min. Area - 1287 sf min. area

☒ Include Perimeter Stone in Calculations

☐ Click for Stage Area Data

☐ Click to Invert Stage Area Data

[Click Here for Metric](#)

StormTech MC-3500 Cumulative Storage Volumes								
Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch. EC and Stone (cubic feet)	Cumulative System (cubic feet)	Elevation (feet)
66	0.00	0.00	0.00	0.00	49.70	49.70	4917.45	1284.14
65	0.00	0.00	0.00	0.00	49.70	49.70	4867.74	1284.06
64	0.00	0.00	0.00	0.00	49.70	49.70	4818.04	1283.97
63	0.00	0.00	0.00	0.00	49.70	49.70	4768.34	1283.89
62	0.00	0.00	0.00	0.00	49.70	49.70	4718.64	1283.81
61	0.00	0.00	0.00	0.00	49.70	49.70	4668.93	1283.72
60	0.00	0.00	0.00	0.00	49.70	49.70	4619.23	1283.64
59	0.00	0.00	0.00	0.00	49.70	49.70	4569.53	1283.56
58	0.00	0.00	0.00	0.00	49.70	49.70	4519.83	1283.47
57	0.00	0.00	0.00	0.00	49.70	49.70	4470.12	1283.39
56	0.00	0.00	0.00	0.00	49.70	49.70	4420.42	1283.31
55	0.00	0.00	0.00	0.00	49.70	49.70	4370.72	1283.22
54	0.06	0.00	1.39	0.00	49.14	50.54	4321.02	1283.14
53	0.19	0.02	4.66	0.14	47.78	52.58	4270.48	1283.06
52	0.29	0.04	7.06	0.23	46.79	54.07	4217.89	1282.97
51	0.40	0.05	9.69	0.31	45.70	55.70	4163.82	1282.89
50	0.69	0.07	16.49	0.41	42.94	59.84	4108.12	1282.81
49	1.03	0.09	24.68	0.53	39.62	64.83	4048.28	1282.72
48	1.25	0.11	29.99	0.64	37.45	68.08	3983.45	1282.64
47	1.42	0.13	34.13	0.76	35.75	70.64	3915.37	1282.56
46	1.57	0.14	37.76	0.87	34.25	72.88	3844.73	1282.47
45	1.71	0.16	40.97	0.98	32.92	74.87	3771.86	1282.39
44	1.83	0.18	43.88	1.09	31.71	76.69	3696.99	1282.31
43	1.94	0.20	46.51	1.20	30.62	78.33	3620.30	1282.22
42	2.04	0.22	48.98	1.31	29.59	79.88	3541.97	1282.14
41	2.13	0.23	51.23	1.41	28.65	81.29	3462.10	1282.06
40	2.22	0.25	53.38	1.50	27.75	82.63	3380.81	1281.97
39	2.31	0.27	55.36	1.59	26.92	83.88	3298.17	1281.89
38	2.38	0.28	57.23	1.68	26.14	85.05	3214.30	1281.81
37	2.46	0.29	59.02	1.76	25.39	86.17	3129.25	1281.72
36	2.53	0.31	60.68	1.85	24.69	87.22	3043.08	1281.64
35	2.59	0.32	62.25	1.93	24.03	88.21	2955.86	1281.56
34	2.66	0.33	63.75	2.01	23.40	89.15	2867.65	1281.47
33	2.72	0.35	65.16	2.08	22.80	90.05	2778.50	1281.39
32	2.77	0.36	66.51	2.16	22.23	90.91	2688.45	1281.31
31	2.82	0.37	67.79	2.23	21.69	91.72	2597.54	1281.22
30	2.88	0.38	69.01	2.31	21.18	92.49	2505.82	1281.14
29	2.92	0.40	70.18	2.38	20.68	93.24	2413.33	1281.06
28	2.97	0.41	71.28	2.45	20.21	93.94	2320.10	1280.97
27	3.01	0.42	72.30	2.51	19.78	94.59	2226.16	1280.89
26	3.05	0.43	73.28	2.58	19.36	95.22	2131.57	1280.81
25	3.09	0.44	74.26	2.64	18.94	95.85	2036.35	1280.72
24	3.13	0.45	75.13	2.70	18.57	96.41	1940.51	1280.64
23	3.17	0.46	75.98	2.77	18.21	96.95	1844.10	1280.56
22	3.20	0.47	76.79	2.82	17.86	97.47	1747.16	1280.47
21	3.23	0.48	77.55	2.88	17.53	97.96	1649.69	1280.39
20	3.26	0.49	78.27	2.94	17.22	98.43	1551.73	1280.31
19	3.29	0.50	78.97	2.99	16.92	98.87	1453.30	1280.22
18	3.32	0.51	79.63	3.04	16.63	99.30	1354.43	1280.14
17	3.34	0.51	80.26	3.09	16.36	99.71	1255.12	1280.06
16	3.37	0.52	80.85	3.13	16.11	100.09	1155.41	1279.97
15	3.39	0.53	81.42	3.18	15.86	100.46	1055.32	1279.89
14	3.41	0.54	81.95	3.22	15.64	100.80	954.86	1279.81
13	3.44	0.54	82.49	3.26	15.40	101.15	854.06	1279.72
12	3.46	0.55	82.99	3.30	15.19	101.47	752.91	1279.64
11	3.48	0.56	83.49	3.33	14.97	101.79	651.43	1279.56
10	3.51	0.59	84.12	3.57	14.63	102.32	549.64	1279.47
9	0.00	0.00	0.00	0.00	49.70	49.70	447.32	1279.39
8	0.00	0.00	0.00	0.00	49.70	49.70	397.62	1279.31
7	0.00	0.00	0.00	0.00	49.70	49.70	347.92	1279.22
6	0.00	0.00	0.00	0.00	49.70	49.70	298.21	1279.14
5	0.00	0.00	0.00	0.00	49.70	49.70	248.51	1279.06
4	0.00	0.00	0.00	0.00	49.70	49.70	198.81	1278.97
3	0.00	0.00	0.00	0.00	49.70	49.70	149.11	1278.89
2	0.00	0.00	0.00	0.00	49.70	49.70	99.40	1278.81
1	0.00	0.00	0.00	0.00	49.70	49.70	49.70	1278.72

User Inputs

Chamber Model:	MC-3500
Outlet Control Structure:	Yes
Project Name:	Fire Station 227
Engineer:	undefined undefined
Project Location:	California
Measurement Type:	Imperial
Required Storage Volume:	4714 cubic ft.
Stone Porosity:	40%
Stone Foundation Depth:	9 in.
Stone Above Chambers:	12 in.
Design Constraint Dimensions:	(28 ft. x 68 ft.)

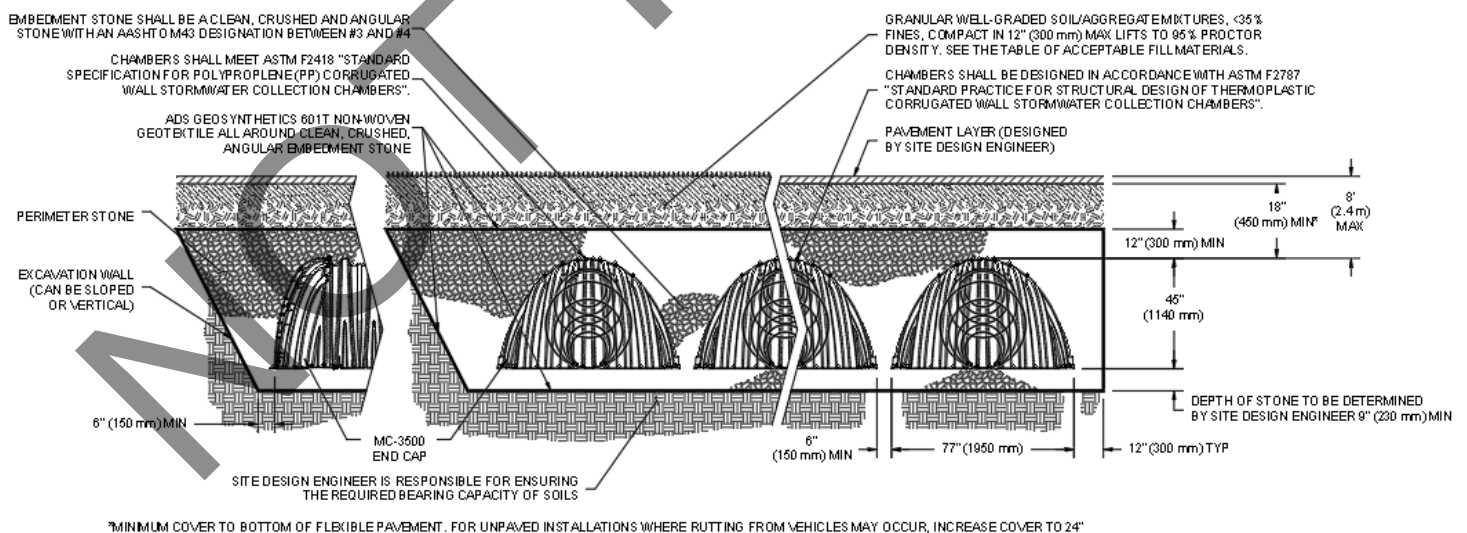
Results

System Volume and Bed Size

Installed Storage Volume:	4917.45 cubic ft.
Storage Volume Per Chamber:	109.90 cubic ft.
Number Of Chambers Required:	24
Number Of End Caps Required:	6
Chamber Rows:	3
Maximum Length:	67.01 ft.
Maximum Width:	22.25 ft.
Approx. Bed Size Required:	1491.07 square ft.
Average Cover Over Chambers:	1.50 ft.

System Components

Amount Of Stone Required:	203 cubic yards
Volume Of Excavation (Not Including Fill):	304 cubic yards
Total Non-woven Geotextile Required:	529 square yards
Woven Geotextile Required (excluding Isolator Row):	59 square yards
Woven Geotextile Required (Isolator Row):	72 square yards
Total Woven Geotextile Required:	130 square yards
Impervious Liner Required:	0 square yards



PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	TERENCE ZHAO 626-425-2874 TERENCE.ZHAO@ADSPIPE.COM
ADS SALES REP	ARNE ERIKSEN 951-796-2048 ARNE.ERIKSEN@ADSPIPE.COM
PROJECT NO.	S467402



SAN BERNARDINO COUNTY FIRE DEPARTMENT: FIRE STATION 227

SAN BERNARDINO, CA, USA

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-3500.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- ADS DOES NOT DESIGN OR PROVIDE MEMBRANE LINER SYSTEMS. TO MINIMIZE THE LEAKAGE POTENTIAL OF LINER SYSTEMS, THE MEMBRANE LINER SYSTEM SHOULD BE DESIGNED BY A KNOWLEDGEABLE GEOTEXTILE PROFESSIONAL AND INSTALLED BY A QUALIFIED CONTRACTOR.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

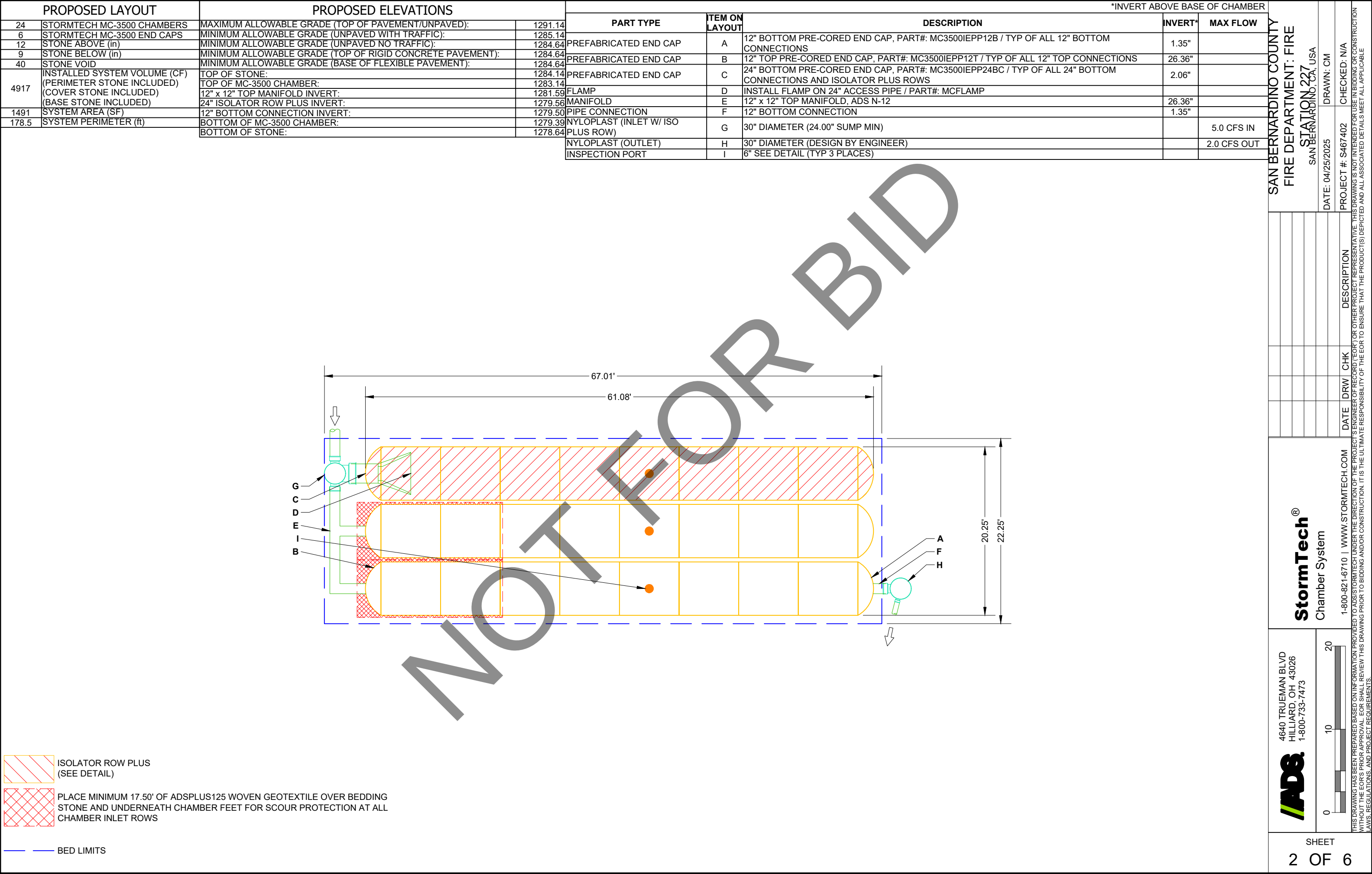
- STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONESHOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE; AASHTO M43 #3, 357, 4, 467, 5, 56, OR 57.
- STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

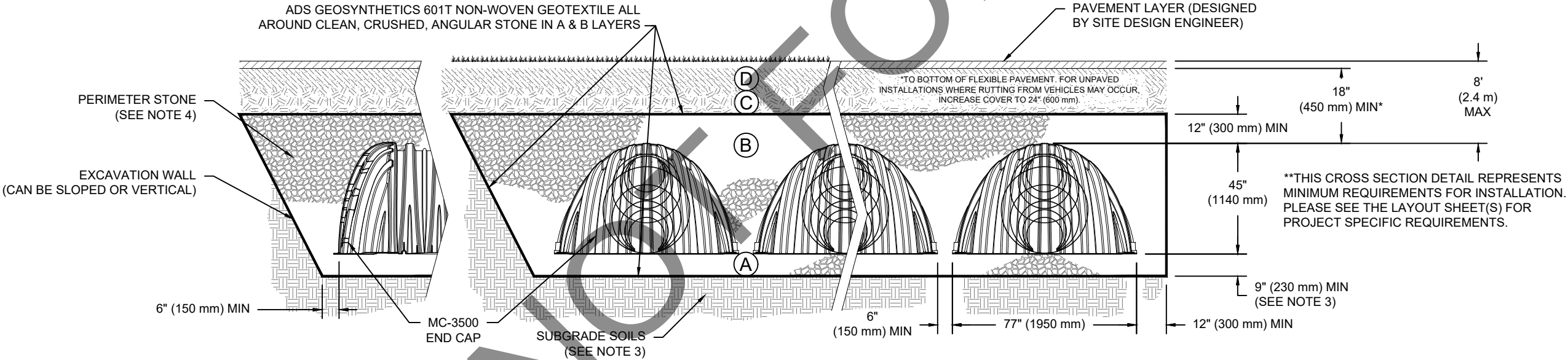
CONTACT STORMTECH AT 1-800-821-6710 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145 ¹ A-1, A-2-4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE ⁵	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE ⁵	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

- PLEASE NOTE:
- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
 - STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
 - WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
 - ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
 - WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
- MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT³%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

SAN BERNARDINO COUNTY

FIRE DEPARTMENT: FIRE

STATION 227

SAN BERNARDINO, CA, USA

DATE: 04/25/2025

DRAWN: CM

CHECKED: N/A

DESCRIPTION

CHK

DRW

DATE

StormTech®

Chamber System

1-800-821-6710 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD

HILLIARD, OH 43026

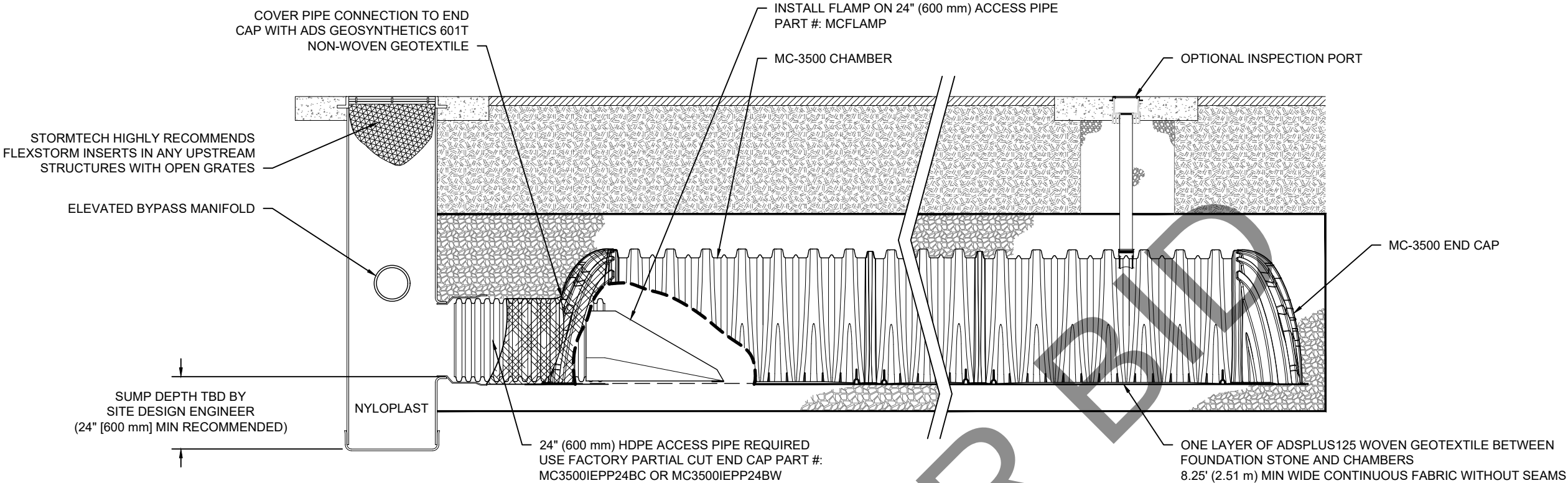
1-800-733-7473

ADS

SHEET

3 OF 6

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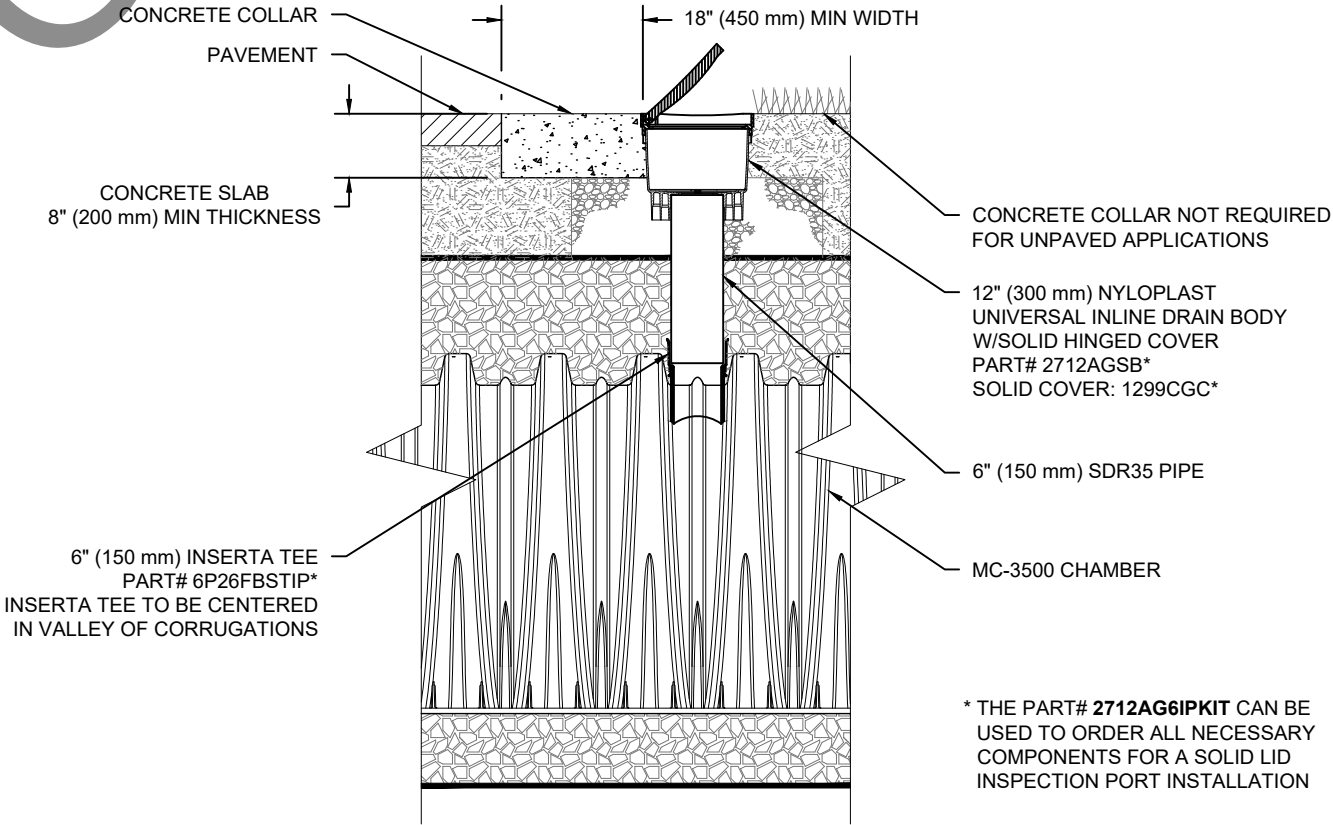
MC-3500 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
- A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
 - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
 - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
 - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
 - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
 - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
 - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
 - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
 - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
 - B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
 - C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

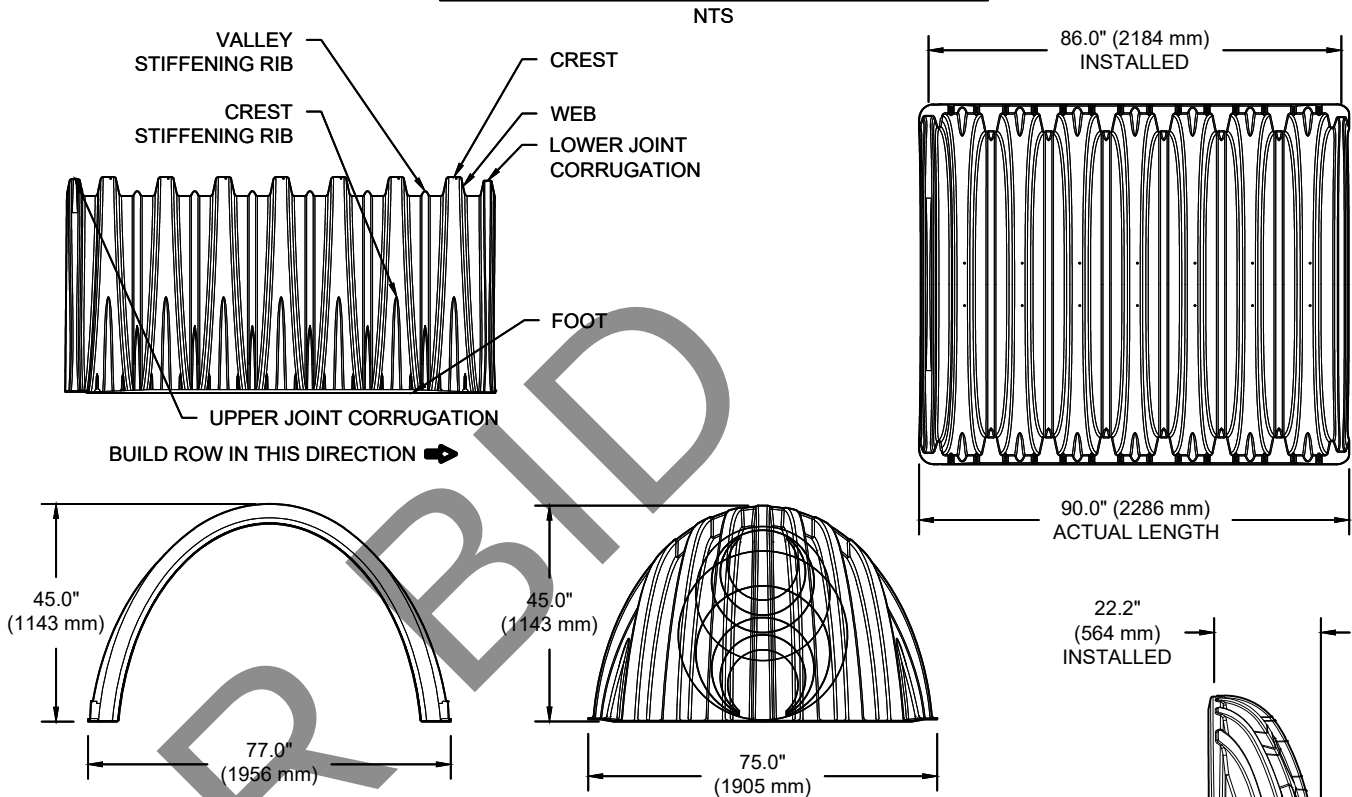
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



MC-3500 6" (150 mm) INSPECTION PORT DETAIL
NTS

 4640 TRUEMAN BLVD HILLIARD, OH 43026 1-800-733-7473		StormTech® Chamber System 1-800-821-6710 WWW.STORMTECH.COM												SAN BERNARDINO COUNTY FIRE DEPARTMENT: FIRE STATION 227 SAN BERNARDINO, CA, USA	
												DATE: 04/25/2025		DRAWN: CM	
												PROJECT #: S467402		CHECKED: N/A	
												THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS BY STORMTECH UNDER THE DIRECTION OF THE PROJECT'S ENGINEER OF RECORD (TEOR) OR OTHER PROJECT REPRESENTATIVE. THIS DRAWING IS NOT INTENDED FOR USE IN BIDDING OR CONSTRUCTION WITHOUT THE TEOR'S PRIOR APPROVAL. TEOR SHALL REVIEW THIS DRAWING PRIOR TO BIDDING AND/OR CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE TEOR TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.			
SHEET															
4 OF 6															

MC-3500 TECHNICAL SPECIFICATION



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" SPACING BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY

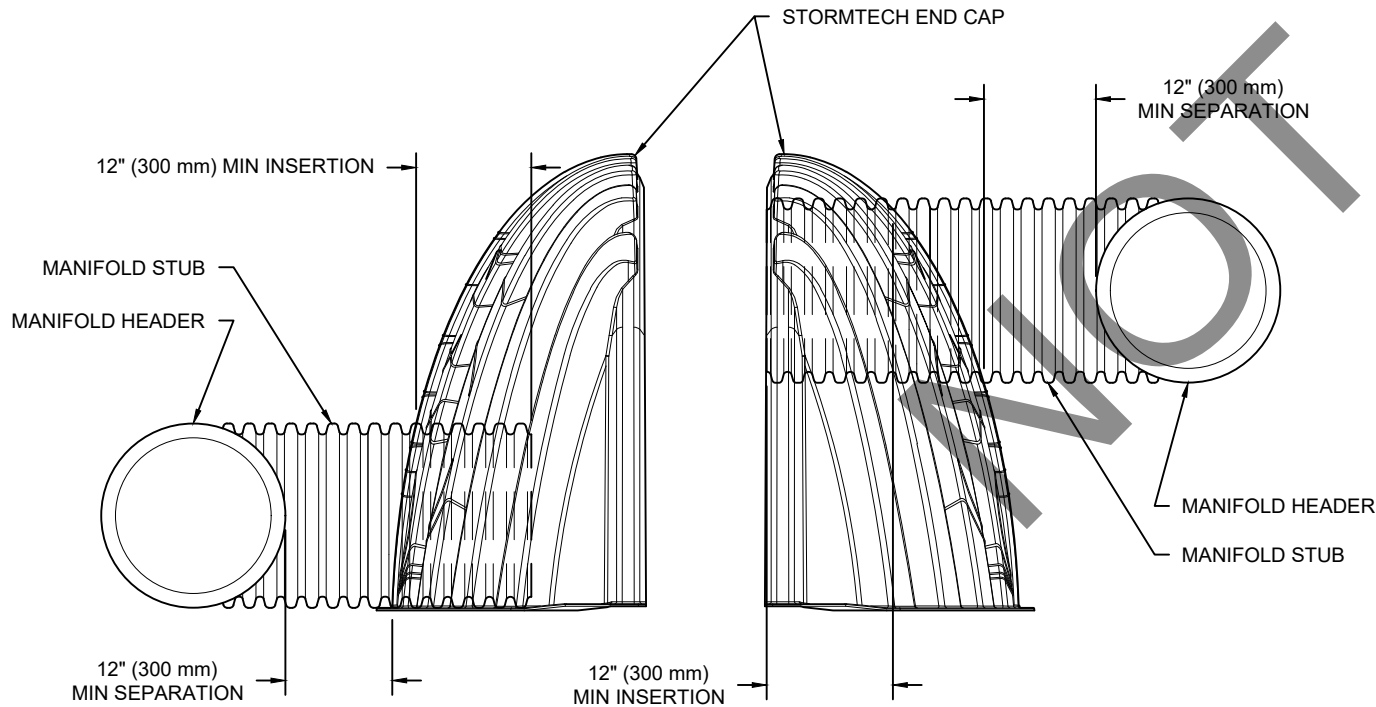
STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T		31.16" (791 mm)	---
MC3500IEPP08B	8" (200 mm)	---	0.81" (21 mm)
MC3500IEPP10T		29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW		---	1.77" (45 mm)
MC3500IEPP18BC			
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW		---	2.06" (52 mm)
MC3500IEPP24BC			
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

MC-SERIES END CAP INSERTION DETAIL

NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

SAN BERNARDINO COUNTY
FIRE DEPARTMENT: FIRE

STATION 227
SAN BERNARDINO, CA, USA

DATE: 04/25/2025

PROJECT #: S467402

CHECKED: N/A

DESCRIPTION

DATE

CHK

DRW

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StormTech®
Chamber System

4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473



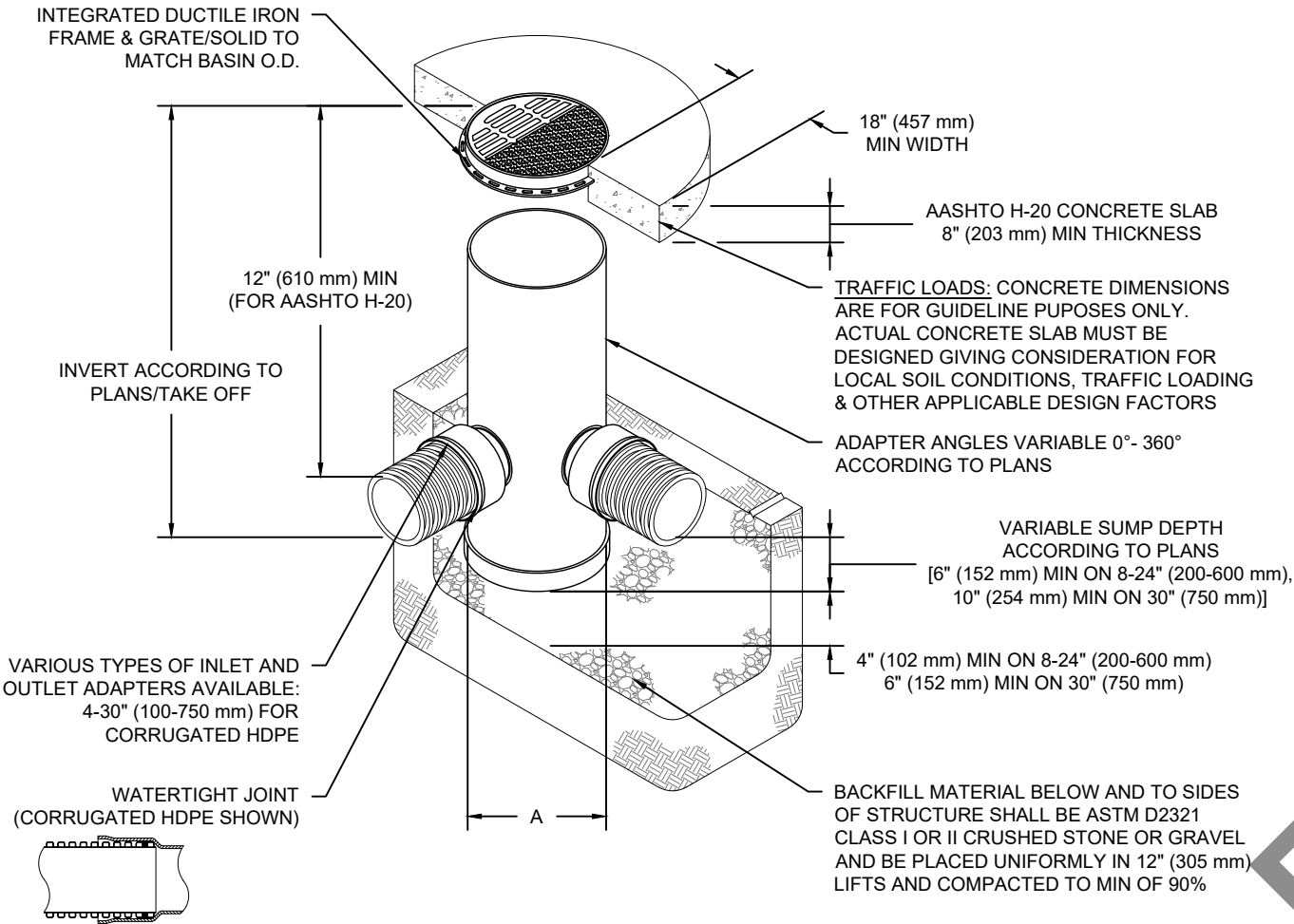
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5 OF 6

CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

NYLOPLAST DRAIN BASIN

NTS



NOTES

- 8-30" (200-750 mm) GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
- 12-30" (300-750 mm) FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
- DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
- DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC
- FOR COMPLETE DESIGN AND PRODUCT INFORMATION: WWW.NYLOPLAST-US.COM
- TO ORDER CALL: 800-821-6710

A	PART #	GRATE/SOLID COVER OPTIONS		
8" (200 mm)	2808AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
10" (250 mm)	2810AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
12" (300 mm)	2812AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
15" (375 mm)	2815AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
18" (450 mm)	2818AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
24" (600 mm)	2824AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
30" (750 mm)	2830AG	PEDESTRIAN AASHTO H-20	STANDARD AASHTO H-20	SOLID AASHTO H-20

SAN BERNARDINO COUNTY
FIRE DEPARTMENT: FIRE

STATION 227
SAN BERNARDINO, CA, USA

DATE: 04/25/2025

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PROJECT #: S467402

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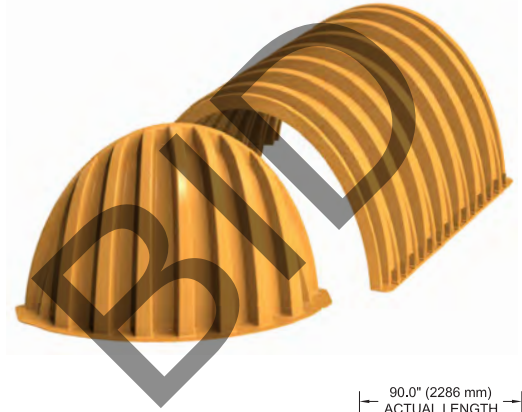


SHEET

6 OF 6

StormTech[®] MC-3500 Chamber

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.



Nominal Chamber Specifications (not to scale)

Size (L x W x H)
90" x 77" x 45"
2286 mm x 1956 mm x 1143 mm

Chamber Storage
109.9 ft³ (3.11 m³)

Min. Installed Storage*
175.0 ft³ (4.96 m³)

Weight
134 lbs (60.8 kg)

Shipping
15 chambers/pallet
7 end caps/pallet
7 pallets/truck

Nominal End Cap Specifications (not to scale)

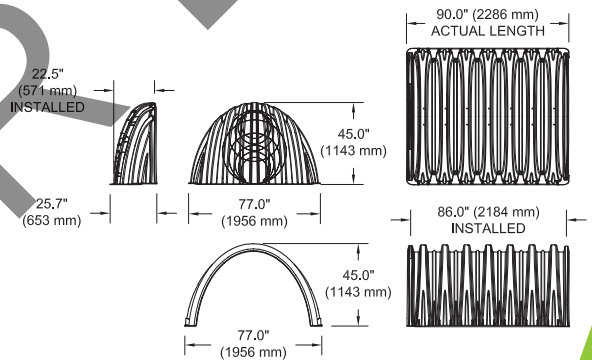
Size (L x W x H)
26.5" x 71" x 45.1"
673 mm x 1803 mm x 1145 mm

End Cap Storage
14.9 ft³ (0.42 m³)

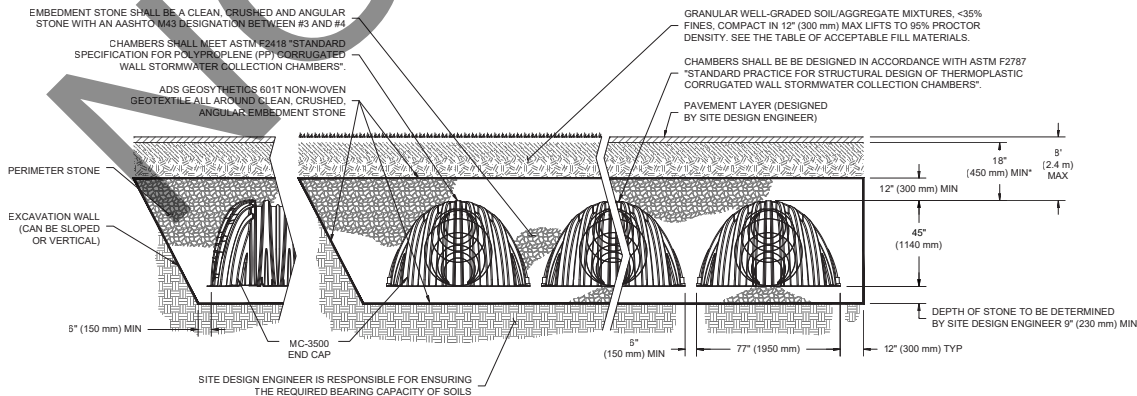
Min. Installed Storage*
45.1 ft³ (1.28 m³)

Weight
49 lbs (22.2 kg)

*Assumes a minimum of 12" (300 mm) of stone above, 9" (230 mm) of stone below, 6" (150 mm) of stone perimeter, 6" (150 mm) of stone between chambers/end caps and 40% stone porosity.



*Assumes a minimum of 12" (300 mm) of stone above, 9" (230 mm) of stone below chambers, 6" (150 mm) of stone between chambers/end caps and 40% stone porosity.



*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24" (600 mm).

StormTech MC-3500 Specifications

Storage Volume Per Chamber

	Bare Chamber Storage ft ³ (m ³)	Chamber and Stone Foundation Depth in. (mm)			
		9 in (230 mm)	12 in (300 mm)	15 in (375 mm)	18 in (450 mm)
Chamber	109.9 (3.11)	175.0 (4.96)	179.9 (5.09)	184.9 (5.24)	189.9 (5.38)
End Cap	14.9 (0.42)	45.1 (1.28)	46.6 (1.32)	48.3 (1.37)	49.9 (1.41)

Note: Assumes 6" (150 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume.

Amount of Stone Per Chamber

English Tons (yds ³)	Stone Foundation Depth			
	9 in	12 in	15 in	18 in
Chamber	8.5 (6.0)	9.1 (6.5)	9.7 (6.9)	10.4 (7.4)
End Cap	3.9 (2.8)	4.1 (2.9)	4.3 (3.1)	4.5 (3.2)
Metric Kilograms (m ³)	230 mm	300 mm	375 mm	450 mm
Chamber	7711 (4.6)	8255 (5.0)	8800 (5.3)	9435 (5.7)
End Cap	3538 (2.1)	3719 (2.2)	3901 (2.4)	4082 (2.5)

Note: Assumes 12" (300 mm) of stone above and 6" (150 mm) row spacing and 6" (150 mm) of perimeter stone in front of end caps.

Volume Excavation Per Chamber yd³ (m³)

	Stone Foundation Depth			
	9 in (230 mm)	12 in (300 mm)	15 in (375mm)	18 in (450 mm)
Chamber	11.9 (9.1)	12.4 (9.5)	12.8 (9.8)	13.3 (10.2)
End Cap	4.0 (3.1)	4.1 (3.3)	4.3 (3.3)	4.4 (3.4)

Note: Assumes 6" (150 mm) of separation between chamber rows and 24" (600 mm) of cover. The volume of excavation will vary as depth of cover increases.

ADS StormTech products, manufactured in accordance with ASTM F2418 or ASTM F2922, comply with all requirements in the Build America, Buy America (BABA) Act.

Working on a project?

Visit us at adspipe.com/stormtech and utilize the Design Tool



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800-821-6710

Isolator[®] Row Plus

O&M Manual



The Isolator® Row Plus

Introduction

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row Plus is a technique to inexpensively enhance Total Suspended Solids (TSS), Total Phosphorus (TP), Total Petroleum Hydrocarbons (TPH) and Total Nitrogen (TN) removal with easy access for inspection and maintenance.

The Isolator Row Plus

The Isolator Row Plus is a row of StormTech chambers, either SC-160, SC-310, SC-310-3, SC-740, DC-780, SC-800, MC-3500, MC-4500 or MC-7200 models, are lined with filter fabric and connected to a closely located manhole for easy access. The fabric lined chambers provide for sediment settling and filtration as stormwater rises in the Isolator Row Plus and passes through the filter fabric. The open bottom chambers allow stormwater to flow vertically out of the chambers. Sediments are captured in the Isolator Row Plus protecting the adjacent stone and chambers storage areas from sediment accumulation.

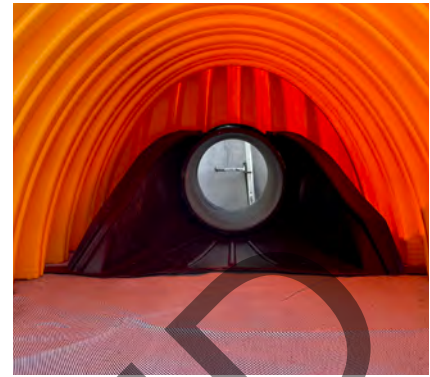
ADS Isolator Row and Plus fabric are placed between the stone and the Isolator Row Plus chambers. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting.

The Isolator Row Plus is designed to capture the “first flush” runoff and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole provides access to the Isolator Row Plus and includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row Plus bypass through a manifold to the other chambers. This is achieved with an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row Plus row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row Plus. After Stormwater flows through the Isolator Row Plus and into the rest of the chamber system it is either exfiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

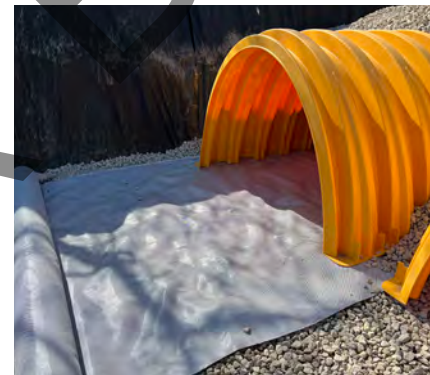
The Isolator Row Plus Flamp™ is a flared end ramp apparatus attached to the inlet pipe on the inside of the chamber end cap. The FLAMP provides a smooth transition from pipe invert to fabric bottom. It is configured to improve chamber function performance by enhancing outflow of solid debris that would otherwise collect at the chamber's end, or more difficult to remove and require confined space entry into the chamber area. It also serves to improve the fluid and solid flow into the access pipe during maintenance and cleaning and to guide cleaning and inspection equipment back into the inlet pipe when complete.

The Isolator Row Plus may be part of a treatment train system. The treatment train design and pretreatment device selection by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, StormTech recommend using the Isolator Row Plus to minimize maintenance requirements and maintenance costs.

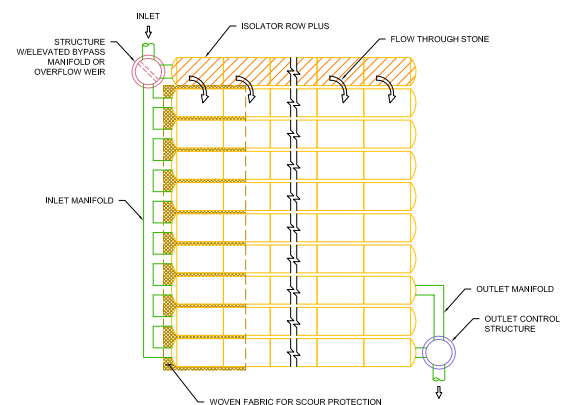
Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row Plus.



Looking down the Isolator Row Plus from the manhole opening, ADS Plus Fabric is shown between the chamber and stone base.



StormTech Isolator Row Plus with Overflow Structure (not to scale)



Isolator Row Plus Inspection/Maintenance

Inspection

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row Plus should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row Plus incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3" (75 mm) throughout the length of the Isolator Row Plus, clean-out should be performed.

Maintenance

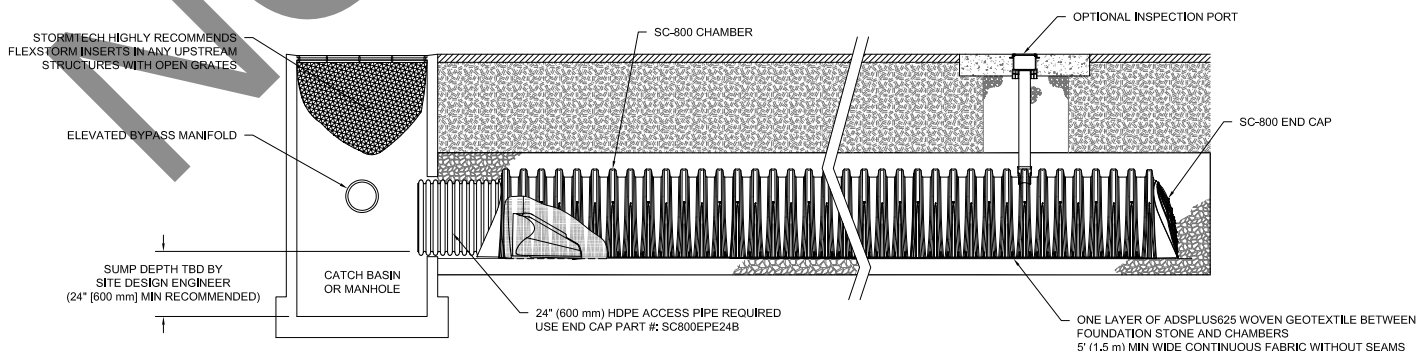
The Isolator Row Plus was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided

via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entry.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. StormTech recommends a maximum nozzle pressure of 2000 psi be utilized during cleaning. JetVac reels can vary in length. For ease of maintenance, ADS recommends Isolator Row Plus lengths up to 200' (61 m). **The JetVac process shall only be performed on StormTech Isolator Row Plus that have ADS Plus Fabric (as specified by StormTech) over their angular base stone.**



StormTech Isolator Row Plus (not to scale)



Isolator Row Plus Step By Step Maintenance Procedures

Step 1

Inspect Isolator Row Plus for sediment.

- A) Inspection ports (if present)
 - i. Remove lid from floor box frame
 - ii. Remove cap from inspection riser
 - iii. Using a flashlight and stadia rod, measure depth of sediment and record results on maintenance log.
 - iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.
 - B) All Isolator Row Plus
 - i. Remove cover from manhole at upstream end of Isolator Row Plus
 - ii. Using a flashlight, inspect down Isolator Row Plus through outlet pipe
 1. Mirrors on poles or cameras may be used to avoid a confined space entry
 2. Follow OSHA regulations for confined space entry if entering manhole
 - iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2.
- If not, proceed to Step 3.

Step 2

Clean out Isolator Row Plus using the JetVac process.

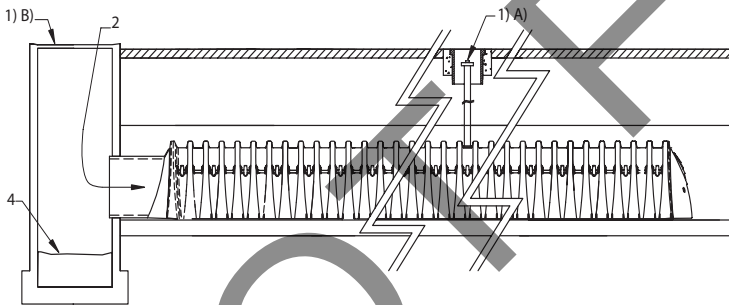
- A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

Step 3

Replace all caps, lids and covers, record observations and actions.

Step 4

Inspect & clean catch basins and manholes upstream of the StormTech system.



Sample Maintenance Log

Date	Stadia Rod Readings		Sedi- ment Depth (1)-(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row Plus, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

adspipe.com

800-821-6710

FlexStorm Catch-It™ Inlet Filter

FlexStorm Catch-It inlet filters are a temporary and reusable solution for storm sewer inlet protection. They comply with ASTM D8057 and are the preferred choice for storm water runoff control. FlexStorm Catch-It inlet filters can be configured to fit any drainage structure, are equipped with a high-efficiency filter bag and allow builders to keep their job sites SWPPP compliant during construction.

Applications

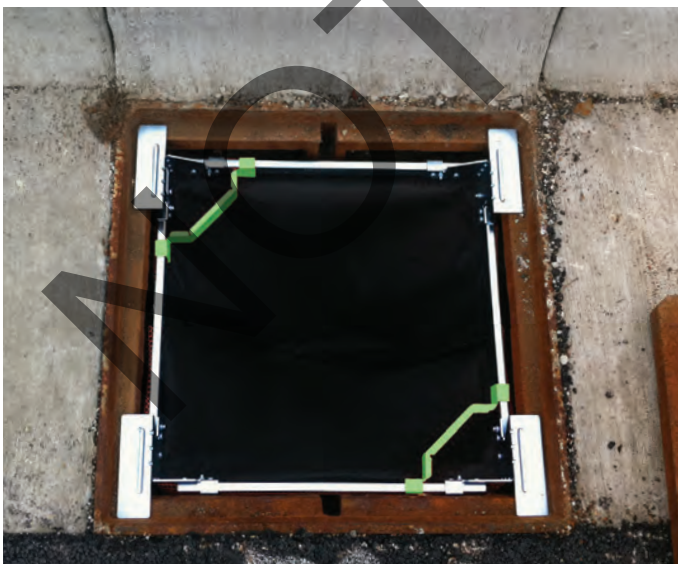
- ✚ Residential developments
- ✚ Commercial developments
- ✚ Roadway construction

Features

- ✚ Configured to fit any storm drainage structure
- ✚ Bypass feature allows streets to drain if bag is full
- ✚ Installs quickly, easy maintenance

Benefits

- ✚ Prevents hazardous road conditions by eliminating ponding at curb inlets
- ✚ Prevents pollution of rivers, lakes and ponds
- ✚ Reduces job site flooding
- ✚ Significantly reduces clean-up costs



FlexStorm Catch-It Inlet Filters Specification

Material and Performance

The filter is comprised of a corrosion resistant steel frame and a geotextile filter bag attached to the frame with a stainless steel locking band. The filter bag hangs below the grate, avoiding traffic interference, and has a built in bypass to allow full water flow even if the bag is completely filled with sediment. The standard "FX" filter bags are rated for 200 gpm/sqft (21.44 liters/minute/cubic meter) with a removal efficiency of 85%. The filters meet ASTM D8057 requirements.

Installation

1. Remove the grate from the inlet.
2. Clean debris from the ledges of the inlet.
3. Place the inlet filter onto the load bearing ledges of the structure.
4. Replace the grate and confirm it is not elevated more than 1/8" (3 mm).

Frequency of Inspections

Inspection should occur every three months and following rain events greater than 1/2" (13 mm). Sites with greater runoff conditions may need to be inspected more frequently.

Maintenance Guidelines

1. Empty the filter bag manually or by industrial vacuum taking care not to damage the geotextile bag when more than half filled or during scheduled inspection period.
2. Remove compacted silt from sediment bag and flush with medium spray.
3. Inspect and replace filter if bag is torn or punctured.

Build America, Buy America (BABA)

ADS FlexStorm Catch-It Inlet Filter is manufactured for temporary use during construction and therefore is not subject to the requirements of the Build America, Buy America (BABA) Act.



ADS FLEXSTORM PURE INLET FILTERS FOR NYLOPLAST BASINS

FILTER SPECIFICATIONS BY NOMINAL SIZE AND BAG STYLE

NOMINAL FILTER SIZE FOR NYLOPLAST BASINS	FILTER PART NUMBER	SOLIDS STORAGE (CuFt)	BYPASS FLOW RATE (CFS)	TREATED FLOW RATE (CFS)*	OIL RETENTION (OZ)**
12" DIA.	6212NYFX	0.3	1.7	1.1	0
	6212NYFXP			1.1	89
	6212NYPCP			0.7	126
15" DIA.	6215NYFX	0.5	2.1	1.6	0
	6215NYFXP			1.6	89
	6215NYPCP			1.1	142
18" DIA.	6218NYFX	0.9	2.5	2.0	0
	6218NYFXP			2.0	89
	6218NYPCP			1.4	168
24" DIA.	6224NYFX	1.6	3.6	2.6	0
	6224NYFXP			2.6	89
	6224NYPCP			1.7	204
30" DIA.	6230NYFX	2.8	4.6	3.4	0
	6230NYFXP			3.4	89
	6230NYPCP			2.2	262

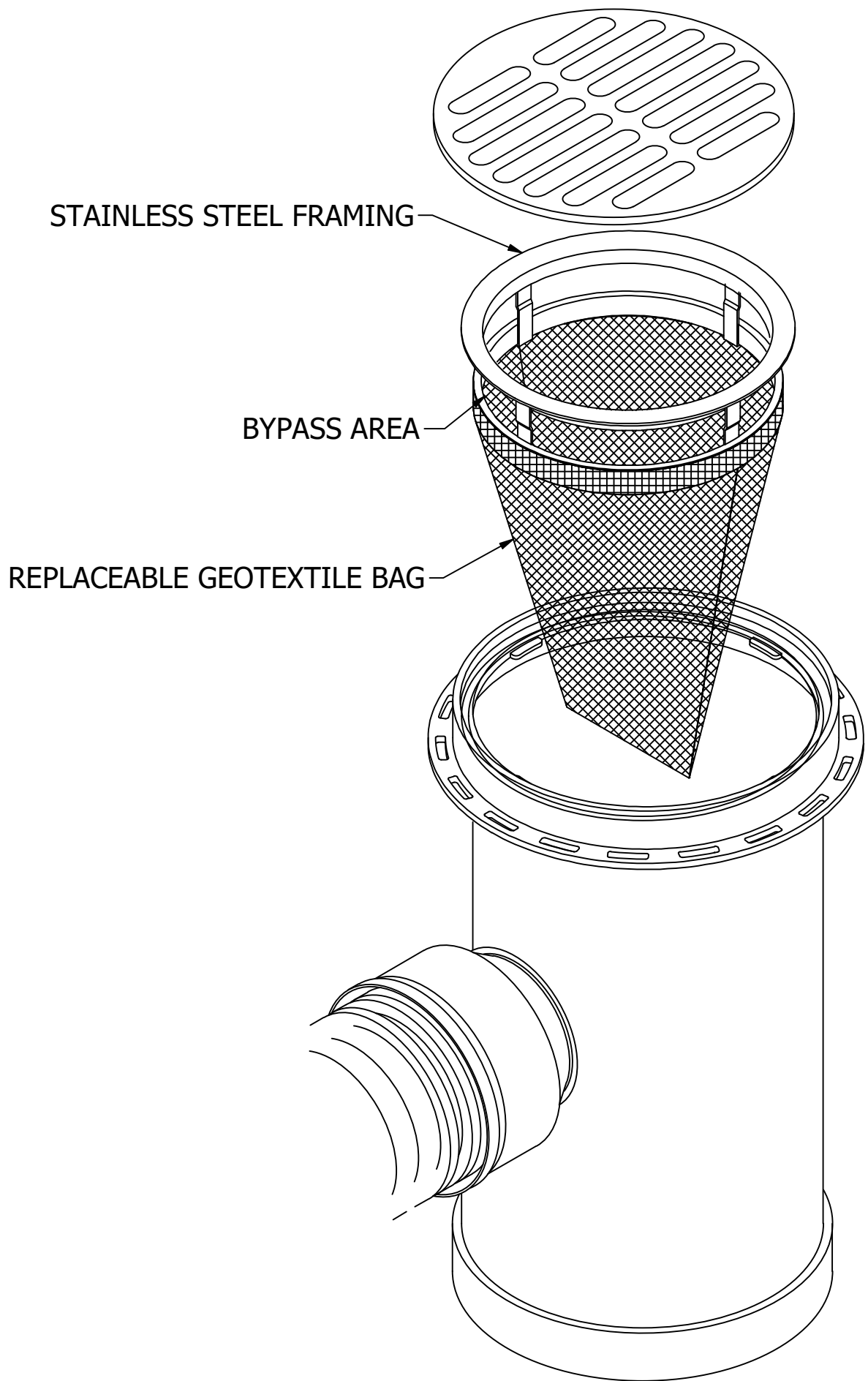
*FILTER BAG AT 50% MAXIMUM SOLIDS STORAGE CAPACITY

**FILTER BAG AT 50% OIL CAPACITY AND CLEARTEC POUCH AT 100% OIL CAPACITY

FX/FXP TSS REMOVAL	82%	LARGE SCALE TESTING PER ASTM D7351 USING 7% CONCENTRATION USDA SANDY LOAM.
PCP TSS REMOVAL	99%	LARGE SCALE TESTING USING US SILICA OK-110 SAND AT 1750 MG/L MEASURING TSS PER SM 2540D.
PCP TPH REMOVAL	97%	LARGE SCALE TESTING WITH USED MOTOR OIL AT 243 MG/L MEASURING PER EPA METHOD 1664A.

NOTES:

1. ALL FRAMING IS CONSTRUCTED OF 304 STAINLESS STEEL.
2. TOTAL BYPASS CAPACITY WILL VARY WITH EACH SIZE DRAINAGE STRUCTURE. ADS DESIGNS FRAMING BYPASS TO MEET OR EXCEED THE DESIGN FLOW OF THE PARTICULAR DRAINAGE STRUCTURE.
3. CONFIRMATION OF THE NYLOPLAST DRAIN BASIN DETAILS AND GRATE STYLE MUST BE PROVIDED TO ENURE PROPER FILTER SELECTION AND USE OF TRANSITION PLATES OR HANGER KITS (IF REQUIRED).
4. ALL FILTERS MEET ASTM D8057 SPECIFICATIONS.
5. FOR WRITTEN SPECIFICATIONS AND MAINTENANCE GUIDELINES VISIT WWW.ADPIPE.COM.



INSTALLATION INSTRUCTIONS:

1. REMOVE GRATE
2. CLEAN GRATE LEDGE
3. SET INLET FILTER ON LOAD BEARING LEDGE OF STRUCTURE
4. REPLACE GRATE

ALL PRODUCTS MANUFACTURED
BY ADVANCED DRAINAGE SYSTEMS
WWW.ADPIPE.COM
PH. 1-800-821-6710



SIZE	DATE	DWG NO	REV
C	02/06/2023	ADS FLEXSTORM PURE (NYLO)	A
SCALE	N/A	SHEET 1 OF 1	